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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/526,735	03/04/2005	Volkmar Schulz	PHDE020199US	7890

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PHILIPS INTELLECTUAL PROPERTY & STANDARDS
595 MINER ROAD
CLEVELAND, OH 44143

EXAMINER	
CWERN, JONATHAN	
ART UNIT	PAPER NUMBER
3737	
MAIL DATE	DELIVERY MODE
03/27/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/526,735	SCHULZ ET AL.	
	Examiner	Art Unit	
	Jonathan G. Cwern	3737	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 January 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *2-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *6 and 11-13* is/are allowed.

6)☒ Claim(s) *14-21* is/are rejected.

7)☒ Claim(s) *2-5, and 7-10* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *3/4/05* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Drawings

The drawings are objected to because in Figure 2, elements 20, 21, 22, and 23 are empty boxes labeled with only a reference numeral. These boxes should also be labeled with the correct name of the element. Reference numerals alone are insufficient. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

Content of Specification

(a) Title of the Invention: See 37 CFR 1.72(a) and MPEP § 606. The title of the invention should be placed at the top of the first page of the specification unless the title is provided in an application data sheet. The title of the invention should be brief but technically accurate and descriptive, preferably from two to seven words may not contain more than 500 characters.

(b) Cross-References to Related Applications: See 37 CFR 1.78 and MPEP § 201.11.

(c) Statement Regarding Federally Sponsored Research and Development: See MPEP § 310.

(d) The Names Of The Parties To A Joint Research Agreement: See 37 CFR 1.71(g).

(e) Incorporation-By-Reference Of Material Submitted On a Compact Disc: The specification is required to include an incorporation-by-reference of electronic documents that are to become part of the permanent United States Patent and Trademark Office records in the file of a patent application. See 37 CFR 1.52(e) and MPEP § 608.05. Computer program listings (37 CFR 1.96(c)), "Sequence Listings" (37 CFR 1.821(c)), and tables having more than 50 pages of text were permitted as electronic documents on compact discs beginning on September 8, 2000.

(f) Background of the Invention: See MPEP § 608.01(c). The specification should set forth the Background of the Invention in two parts:

(1) Field of the Invention: A statement of the field of art to which the invention pertains. This statement may include a paraphrasing of the applicable U.S. patent classification definitions of the subject matter of the claimed invention. This item may also be titled "Technical Field."

(2) Description of the Related Art including information disclosed under 37 CFR 1.97 and 37 CFR 1.98: A description of the related art known to the applicant and including, if applicable, references to specific related art and problems involved in the prior art which are solved by the applicant's invention. This item may also be titled "Background Art."

(g) Brief Summary of the Invention: See MPEP § 608.01(d). A brief summary or general statement of the invention as set forth in 37 CFR 1.73. The summary is separate and distinct from the abstract and is directed toward

the invention rather than the disclosure as a whole. The summary may point out the advantages of the invention or how it solves problems previously existent in the prior art (and preferably indicated in the Background of the Invention). In chemical cases it should point out in general terms the utility of the invention. If possible, the nature and gist of the invention or the inventive concept should be set forth. Objects of the invention should be treated briefly and only to the extent that they contribute to an understanding of the invention.

(h) Brief Description of the Several Views of the Drawing(s): See MPEP § 608.01(f). A reference to and brief description of the drawing(s) as set forth in 37 CFR 1.74.

(i) Detailed Description of the Invention: See MPEP § 608.01(g). A description of the preferred embodiment(s) of the invention as required in 37 CFR 1.71. The description should be as short and specific as is necessary to describe the invention adequately and accurately. Where elements or groups of elements, compounds, and processes, which are conventional and generally widely known in the field of the invention described and their exact nature or type is not necessary for an understanding and use of the invention by a person skilled in the art, they should not be described in detail. However, where particularly complicated subject matter is involved or where the elements, compounds, or processes may not be commonly or widely known in the field, the specification should refer to another patent or readily available publication which adequately describes the subject matter.

(j) Claim or Claims: See 37 CFR 1.75 and MPEP § 608.01(m). The claim or claims must commence on separate sheet or electronic page (37 CFR 1.52(b)(3)). Where a claim sets forth a plurality of elements or steps, each element or step of the claim should be separated by a line indentation. There may be plural indentations to further segregate subcombinations or related steps. See 37 CFR 1.75 and MPEP § 608.01(i)-(p).

(k) Abstract of the Disclosure: See MPEP § 608.01(f). A brief narrative of the disclosure as a whole in a single paragraph of 150 words or less commencing on a separate sheet following the claims. In an international application which has entered the national stage (37 CFR 1.491(b)), the applicant need not submit an abstract commencing on a separate sheet if an abstract was published with the international application under PCT Article 21. The abstract that appears on the cover page of the pamphlet published by the International Bureau (IB) of the World Intellectual Property Organization (WIPO) is the abstract that will be used by the USPTO. See MPEP § 1893.03(e).

(l) Sequence Listing, See 37 CFR 1.821-1.825 and MPEP §§ 2421-2431. The requirement for a sequence listing applies to all sequences disclosed in a given application, whether the sequences are claimed or not. See MPEP § 2421.02.

The abstract of the disclosure does not commence on a separate sheet in accordance with 37 CFR 1.52(b)(4). A new abstract of the disclosure is required and must be presented on a separate sheet, apart from any other text.

Also in the abstract, on line 7, the word “sheath” is misspelled.

The disclosure is objected to because of the following informalities: the specification should be labeled with the appropriate headings and subheadings, such as for example, “Brief Summary of the Invention” and “Detailed Description of the Invention”, and others listed above. On page 2, the specification references specific claims, for example claim 1. Also, the last paragraph on page 2 is confusing in that it refers to a permittivity smaller than 2.3, but then gives an example of a material having a permittivity of 2.3. The parameters listed on page 4, first paragraph are inconsistent with those listed on page 1. On page 4, in the description of Figure 2, microcoil 4 is not found in the drawings, and element 4 is earlier referred to in the specification as two electrical conductors 4 at the top of page 4. On page 5, microcoil 12 is earlier referred to as image acquisition device 12. Magnetic field sensor 13 is earlier referred to as localization device 13. RF coil system 14 is earlier referred to as excitation coil 14. Coil array 15 is earlier referred to as coil system 15. Applicant is advised to go carefully check the entire specification and check that all reference numerals refer to only one component, as one name.

Appropriate correction is required.

Claim Objections

Claims 2-5, 7-10, and 15-20 are objected to because of the following informalities:

In claim 4, "the voltage supply" lacks antecedent basis, and it is unclear as to whether the medical instrument is the same as that set forth in claim 7.

Claim 7 is labeled as (new), however, there is underlining and strikethrough marking in the claim, indicated that it has been amended.

Claims 8-10 depend from claim 1, which has been cancelled.

In claim 15, “frequency” should be inserted after “common mode”.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 14-19 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: the diameter of the conductors and the distance between the conductors in the localization system.

Claims 14-21 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: a relative permeability/permittivity which is used to determine the shortening factor.

Claim 21 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claim attempts to define structural limitations of the catheter based on the unclaimed magnetic resonance excitation frequency of the associated magnetic resonance imaging machine.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was

not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 14-19, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Atalar et al. (US 5699801) in view of Hastings et al. (US 2002/0103430) and further in view of Moore et al. (US 2002/0007120).

Atalar et al. show, a main field magnet system (column 4, lines 35-50); a gradient coil system for generating magnetic gradient fields (column 4, lines 35-50); an RF coil system for exciting an examination zone (column 4, lines 35-40); a receiving coil system for receiving MR signals from the examination zone (column 4, lines 35-400; a catheter for use in MR imaging (Atalar show a catheter which is removed after the coil is in place, column 8, lines 20-35); a hollow channel guide or lumen within the catheter for receiving a medical instrument (column 8, lines 20-35); two electrical conductors which are enclosed by a cable sheath of a dielectric material and serve for the transmission of RF signals within the catheter sleeve (column 7, lines 30-65), and the distance between the electrical conductors being smaller than 300 micrometers (0.1mm, column 7, lines 30-65). Also, means for catheter localization (locating the coil position, column 15, lines 25-40); local excitation of the examination zone and local reception of MR signals (transmit and receive, column 12, lines 10-35).

Hastings et al. show, a catheter sleeve (Hastings also show a more complete catheter system in which would not be removed after the coil is in place, [0036]) and Figure 2a); a control unit to control the MR device ([0035]); and the electrical conductors

arranged to conduct a direct voltage to the voltage supply of a medical instrument arranged on or in the catheter (the leads from the power supply connect to the leads of the coil assembly and used to enhance the image or measure the location and orientation of the coils, [0038]).

Moore et al. show, the dielectric material having a relative permittivity smaller than 4 (dielectric constant is 2.7, [0117]).

It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to have used the conductors to carry a voltage to power the coils as taught by Hastings, in the device of Atalar, with the motivation that they will provide a suitable means to conduct a voltage to the medical instrument within the catheter. This will simplify and reduce the cost of the device as there is no need for extra wiring to power the instrument. Atalar describes the coil serving as a transmitter, and transmitter power being introduced (column 12, lines 10-35). The Hastings reference is provided as additional support because Atalar does not explicitly state that the conductors carry the voltage to power the transmitter, although this is Atalar's intention.

It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to have made the dielectric conductors between 5 and 50 micrometers, to use a dielectric material with a relative permittivity smaller than 2.3, and to have the dielectric material be an aerated synthetic material. Atalar's conductors are 100 micrometers (column 7, lines 30-65). Conductors of a size between 5 and 50 micrometers are well known to exist throughout the electronic arts, and would have to be made small to operate within the small constraints within the body. The dielectric

constant of Moore is 2.7. Materials with dielectric constants of less than 2.7 are well known in the art. In fact, Atalar show that the dielectric material may be the synthetic material, tetrafluoroethylene, or "TEFLON", which has a dielectric constant less than 2.7. As per applicant's specification, aerated synthetic materials are known and marketed by Good Fellow. FP301040 or FP301020 are variations of tetrafluoroethylene, or "TEFLON". Moore supplies the motivation that one of ordinary skill in the art would know to choose the size of the conductors and the dielectric material to match the desired impedance levels of the transmission lines ([0134]). This construction (the distance between the conductors) would inherently shift the common mode frequency, or positioning frequency to be different than the magnetic resonance excitation frequency, therefore inhibiting heating adjacent to the catheter.

There is a reasonable expectation of success to combine these references because all are related to intraluminal probes for analysis of the human body. Hastings and Atalar are directed towards specifically MR imaging, and although Moore does not specifically mention MR imaging, one of ordinary skill in the art would recognize that the conductor and dielectric teaches of Moore are not limited by an particular imaging modality, and could be applied to any electronic art or imaging modality in which conductors and dielectric material are used.

Allowable Subject Matter

Claims 6 and 11-13 are allowable over the prior art of record.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan G. Cwern whose telephone number is (571)270-1560. The examiner can normally be reached on Monday through Friday 9:30AM - 6:00PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Casler can be reached on 571-272-4956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/J. G. C./
Examiner, Art Unit 3737

/Ruth S. Smith/
Primary Examiner, Art Unit 3737